

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
31 December 2003 (31.12.2003)

PCT

(10) International Publication Number  
**WO 2004/000886 A1**

- (51) International Patent Classification<sup>7</sup>: **C08B 37/00**, 37/08, 37/10 (74) Agent: **SERRAVALLE, Marco**; Serravalle s.a.s., Via B. Cellini, 11, I-20090 Segrate (IT).
- (21) International Application Number: **PCT/EP2003/006446** (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PI, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (22) International Filing Date: **18 June 2003 (18.06.2003)**
- (25) Filing Language: **English**
- (26) Publication Language: **English**
- (30) Priority Data: **MI2002A001372** **21 June 2002 (21.06.2002)** **IT** (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- (71) Applicant (*for all designated States except US*): **LABORATORI DERIVATI ORGANICI S.p.A.** [IT/IT]; Via M. Barozzi 4, I-20122 Milano (IT).
- (72) Inventors; and
- (75) Inventors/Applicants (*for US only*): **DE AMBROSI, Luigi** [IT/IT]; Via G. Carducci 8, I-13048 Santhià/Vc (IT). **IANNACONE, Nicola** [IT/IT]; Via Eugenio Chiesa, 2, I-56123 Pisa (IT). **GONELLA, Sergio** [IT/IT]; Via Dolomiti, 1, I-13048 Santhià/Vc (IT). **VISMARA, Elena** [IT/IT]; Via G. Colombo, 81A, I-20133 Milano (IT). **NESTI, Solitario** [IT/IT]; Via Giugnano, 42, I-51030 S. Baronto/PT (IT). **TORRI, Giangiacomo** [IT/IT]; Via G. Colombo, 81A, I-20133 Milano (IT).
- Declaration under Rule 4.17:**  
— *of inventorship (Rule 4.17(iv)) for US only*
- Published:**  
— *with international search report*
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: **PROCESS FOR THE PHYSICAL DEPOLYMERIZATION OF GLYCOSAMINOGLYCANS AND PRODUCTS OBTAINED THEREFROM**

(57) Abstract: The invention relates to a process for the depolymerization of glycosaminoglycans characterized by the use of electron beam radiation, optionally in the presence of an organic compound selected from the group consisting of ethers, alcohols, aldehydes, amides and formic acid. The invention also relates to the intermediate depolymerized heparin obtained by the process. The intermediate depolymerized heparin can be dissolved in a buffer solution and fractionated by Gel Permeation for obtaining the desired Molecular Weight.

WO 2004/000886 A1